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## NEW BATHYMETRICAL CHARTS OF THE OCEANS\*<sup>1</sup>

None of the maps hitherto available showing ocean depths, such as the Prince of Monaco's map or the maps in the *Challenger Report*, Berghaus' *Physical Atlas*, or the atlases of the Deutsche Seewarte combine in one the advantages of the present set of three maps. They are the first to represent on an equal-area projection the bathymetry of each ocean on a single sheet, on a scale small enough to afford a general survey and yet large enough to retain details. They are based on all of the available material up to January, 1912, and bear evidence of a degree of scientific worth hitherto unattained in this field.

The scale of all three maps is the same, viz., 1:40,000,000. The maps of the Pacific and Indian Oceans are drawn on Lambert's equal-area azimuthal projection, the map of the Atlantic on Lambert's equal-area cylindrical projection.

The limits of each map are ingeniously chosen. The Atlantic is shown in its entire extent, as defined by Krümmel, from the coast of West Antarctica beyond and including the Arctic Mediterranean to Bering Strait, and, on the east and west, including the European and the American Mediterranean. The map of the Indian Ocean includes, in the north, the Red Sea and the Persian Gulf, in the south, the whole of the Antarctic Continent and, in the east, the basin and trough region to the east of Australia and in the Malay Archipelago. The map of the Pacific Ocean on its eastern margin represents the beginning of the Greater Antilles with the Porto Rico Trough and, on its western margin, the Sunda Trough to the south of Java, so that this map includes all the oceanic troughs of the world.

The color scheme produces a plastic effect. The continental shelf, in pale yellow, and the troughs, in three shades of red, are admirably brought out; the intervening depths for every thousand meters are represented in six shades of blue. The line element is drawn with the greatest delicacy; in this it is in keeping with the great care and accuracy which pervades the whole undertaking. A text of 91 pages accompanies the maps. It affords an insight into the development of the work from the formulation of the problem through the selection of suitable projections and the preparation of intermediate maps, with their great amount of data of unequal value, to the final drawing. To his own draftsmanship the author applies the same strict control. Thus an estimate of the value of the work is possible in every respect, a circumstance which deserves special commendation.

The distribution of existing soundings, as is evident from the figures entered on the maps, is very unequal. They are, of course, densest in the North Atlantic. Except for the center of the Polar Basin there is hardly a five-degree "square" which does not contain at least one sounding, while in the South Atlantic there are many such, even in juxtaposition. In the latter, mainly south of the Tropic of Capricorn, the few definite routes stand out along which soundings have been made. In the mid-latitudes of the North Atlantic, however, there is only one region where there is a prominent gap, viz., in the area extending north to Davis Strait from the latitude of the Strait of Belle Isle. This would be a fruitful field for Canadian oceanography. In the Pacific there is a marked contrast between the now so well charted marginal areas of Australasia and the vast main body of the ocean, which, aside from a strip extending diagonally across it from Fiji to San Francisco, is conspicuously blank over wide expanses. In the Indian Ocean, also, except for its borders, the sounding routes still stand out too prominently, and between Tasmania and Kerguelen there is a zone totally devoid of soundings.

LUDWIG MECKING.

\* Translated from the original written in German for the *Review*.

<sup>1</sup> M. Groll: Tiefenkarte der Ozeane. 3 maps with 91 pp. of text. *Veröffentl. des Inst. für Meereskunde, Neue Folge, A: Geogr.-naturwiss. Reihe, Heft 2.* Berlin, 1912.